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ABSTRACT

Twenty-four mother-toddler dyads, 12 each from the Hmong and Caucasian communities of the Twin Cities, took part in a cross-cultural study of maternal-child interaction and its links to health and development. Findings showed that the Hmong mothers were rated as more attentive, expressive, sensitive, responsive, and patient in childrearing than the Caucasian mothers on all the scales used (items from the Mother-Child Rating Scales, Ainsworth's System for Rating Maternal-Care Behavior, and interaction items from the Home Observation for Measurement of the Environment). Hmong mothers also were more effective in protecting their children, evidenced by fewer emergency room visits, and they reported a more nutritious diet for their toddlers than did Caucasian mothers, despite similar incomes. In contrast, the Caucasian children were more likely to be adequately immunized than the Hmong children although no significant medical differences between the groups were found. None of the children could be classified as developmentally delayed. Although the ratio of adults to children in the two populations was approximately the same (with Hmong households having larger numbers of both), Hmong families appeared to support the mother in her responsibilities to a greater extent than did the Caucasian families. There were significantly fewer disruptions from separation or divorce in the Hmong population and more sharing child care among adults in the families. (CMG)

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**A CROSS-CULTURAL ASSESSMENT OF MATERNAL-CHILD INTERACTION:
LINKS TO HEALTH AND DEVELOPMENT**

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Running Head: Hmong Toddlers

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A Cross-Cultural Assessment of Maternal-Child Interaction: Links to Health and Development

Over 200 years ago the Hmong people migrated from China to the mountaintops of Laos (LeBar & Suddard, 1960). In the last decade, as a result of war, thousands have come to the United States and to the Twin Cities metropolitan area. Their arrival here has given us the opportunity to explore from a cross-cultural perspective the differences in the perception of health and disease and the utilization of the health care system. In addition, we have attempted to compare and contrast Hmong and Caucasian toddler development, parenting techniques, and maternal-child interaction which are so important for subsequent growth and development.

Method

The present study was conducted in the Pediatric Clinic at Hennepin County Medical Center from November 1982 through March 1983. The subjects consisted of 24 mother-child dyads, 12 each from the Caucasian and Hmong communities of the Twin Cities. The average ages at the time of the study for Hmong and Caucasian children, respectively, were 20 months (range 18.0 - 21.5) and 19 months (range 18.0 - 20.3). All families were of low socioeconomic status. In addition, all children were born at Hennepin County Medical Center and were part of a larger longitudinal study (Muret-Wagstaff & Moore, Note 1) which was begun in the newborn period.

During a one-hour pediatric clinic visit for each child and parent, a pediatrician (C.O.) unaware of results of the earlier newborn study and trained in the use of the cited instruments collected data in the areas of health, development, and parent-child interaction. First, sociodemographic data and a medical history were obtained by interview. Next, a developmental assessment was conducted using the Denver Developmental Screening Test (Frankenburg, Goldstein, & Camp, 1971), followed by a complete physical examination. Throughout the clinic visit, mother-child dyads were observed and rated on several scales of mother-child interaction. They were:

1. Items from the Mother-Child Rating Scales (Egeland, Deinard, Brunnequell, & Taraldson, Note 2)
2. Ainsworth's System for Rating Maternal-Care Behavior (Note 3)
3. Interaction items from the Home Observation for Measurement of the Environment (HOME) (Caldwell & Bradley, 1978)

The maternal-child interaction instruments are described below.

Mother-Child Rating Scales

Fourteen items from the Mother-Child Rating Scales were chosen from those used by Egeland, Deinard, Brunnequell, and Taraldson (Note 2) when they observed feeding, play, and clinic waiting room behavior of mothers and infants in the same urban population from which the present Caucasian sample was drawn. Eight of the 14 items were among 10 which loaded significantly on Mother's Caretaking Skills and Mother's Affective Behavior factors in the original authors' analysis — factors which strongly contributed to differentiation between subsequent adequate and inadequate parental care groups

(Egeland, Deinard, Brunquell, Phipps-Yonas, & Crichton, Note 4; Vaughn, Taraldson, Crichton, & Egeland, 1980). Selection of the 14 items was directed by their relevancy to the toddler period and the likelihood of their expression during a typical pediatric visit, confirmed by pilot testing. The items focus on the specific quality and variability of the mother's handling of the child and responsiveness to fussing and crying, as well as her general patience, attentiveness, and expressiveness towards the child. Each item is scored on a 9-point scale, with scale points defined for individual items, high scores indicating optimal performance.

Ainsworth's System for Rating Maternal-Care Behavior

Ainsworth's 9-point rating scales represent a more global assessment of the parent-child relationship in four areas: Sensitivity vs Insensitivity to the Baby's Communications, Cooperation vs Interference, Acceptance vs Rejection, and Accessibility vs Ignoring and Neglecting. The Sensitivity vs Insensitivity to the Baby's Communications scale, which distinguished between the consistently high-scoring Hmong and more variable Caucasian mothers in the newborn period, has been most widely used in other research (Vaughn, Taraldson, Crichton, & Egeland, 1980; Whitt & Casey, 1982) and is described here in greatest detail.

1. Sensitivity vs Insensitivity to Baby's Communications

This scale reflects the mother's ability to perceive accurately the signals and cues implicit in her infant's behavior. A mother rated as highly sensitive, or 9, is one who is exquisitely attuned to her child's signals. She responds promptly and appropriately to the child's subtle cues. She is empathic and respects the child's point of view. Her interactions with the child seem complete and well-rounded, and she monitors the child and the environment closely, anticipating problems. A rating of 7 is considered a sensitive response. The mother generally interprets the child's signals accurately and is never seriously out-of-tune with the baby's state. However, she may be less sensitive to more subtle cues. For example, she may feed him when he fusses and sucks his fist, but she might miss the message in his uncomfortable squirming. A mother rated 5, or inconsistently sensitive, is visibly more ambivalent. She may be sensitive on occasion, but is inconsistent and at times may be unaware of her baby's whereabouts or needs. An insensitive mother is scored 3. She fails to respond promptly or appropriately. However, the capacity for sensitivity may be seen on some occasions. Finally, a highly insensitive response, or 1, is characterized by a mother who is geared almost exclusively to her own wishes, moods, and activities. She responds to the baby's signals only if repeated, prolonged, and intense, and only if they are in keeping with her own needs.

2. Cooperative vs Interference

The central issue addressed by this scale is whether the mother's initiations of interaction are geared to the baby's state or whether she interrupts and fragments the child's ongoing activity. A highly cooperative mother capitalizes on spontaneity and sees her baby as a separate person whose activities have a validity of their own. A highly interfering mother fails to acknowledge this autonomy and is arbitrary in her interference.

3. Acceptance vs Rejection

This scale deals with the mother's behavior indicative of the extent to which she integrates the positive and negative feelings that come with parenthood. The highly accepting mother respects the fact that the baby has a will of his own, even when it opposes hers. Her periods of irritation and frustration are brief, and she accepts responsibility for his care without resentment. At the other end of the continuum, highly rejecting behavior includes pervasive irritation and scolding, rough handling and ill-concealed anger, and maternal escalation of conflict in power struggles.

4. Accessibility vs Ignoring and Neglecting

This scale deals with the mother's awareness of the child and her responsiveness to him. A highly accessible mother is aware of the baby consistently; she actively acknowledges and responds to him. An inaccessible mother ignores her baby and in this sense she neglects him. It is the simple acknowledgment of the baby's real presence that is important to this scale — not the quality of her response to him tapped by the Sensitivity-Insensitivity scale.

HOME

Finally, a subset of 10 parent-child interaction items from the HOME was used to assess:

1. The emotional and verbal responsiveness of the mother;
2. The avoidance of restriction and punishment; and,
3. Maternal involvement with the child.

This instrument uses a Yes/No dichotomous scoring. The rating is such that the higher the total score, the more optimal the environment for the child. Such scores using the complete instrument have been related to later evidence of positive cognitive development (Elarao, Bradley, & Caldwell, 1975).

The examiner was trained in the use of the observational instruments and pilot testing was conducted over a three-week period during medical visits in the pediatric clinic in which this study was to take place. In pilot testing it was noted that both parent and child behavior became more stilted with two observers present rather than one. Therefore, in an attempt to maintain high validity of study observations, a decision was made to conduct 5 reliability observations throughout the study on Hmong and Caucasian children of the same clinic population but who were not participants in the project sample. Interscorer reliability between the study examiner and a second simultaneous independent observer, defined as within-one-point agreements for 9-point scales and exact agreement for dichotomous ratings each divided by agreements plus disagreements, was .83 and 1.0 for the two parent-child dyads tested immediately prior to the study, 1.0 for the two tested while the study was in progress, and .87 for a mother-child pair tested at the conclusion of the study. Interobserver reliabilities for the Mother-Child Rating Scales, Ainsworth's System for Rating Maternal-Care Behavior, and the HOME, respectively, were .94, .95, and .93.

Statistical analyses of the sociodemographic and medical data and scores from the mother-child interaction scales were carried out with two-tailed t tests and Fisher's exact

test. Denver Developmental Screening Tests were scored and compared according to the manual (Frankenburg, Dodds, & Fandal, 1973). Thorough physical examinations followed a standard format (McKay, 1975) and are reported descriptively.

Results

Sociodemographic Data

While at birth each child in the study lived in a household with the mother and at least one other adult, interviews with parents during the toddler period revealed that the make-up of the family network and the integration of family roles was much different for the two groups, as might expected. The family size was larger for Hmong than for Caucasian families with a significantly greater number of adults ($t = 2.06$, $p = .05$) and children ($t = 3.73$, $p = .01$) in Hmong households. However, the ratio of adults to children was not different between groups. Most striking was the availability of family support for the Hmong people. They come from a tradition of extended patrilineal families, while their Caucasian counterparts live in more nuclear and isolated families. This family support is shown by the significantly greater reported involvement of the Hmong grandmother ($t = 2.49$, $p = .05$) in the childrearing experience. The Hmong mothers also reported involvement of the father in childrearing more often than the Caucasians, but the difference did not reach statistical significance. This pattern of care appears to have been carried forward from the Hmong tradition in Laos.

There were also important family differences involving marriage and pregnancy. Twenty-five percent of the Caucasian mothers had experienced disruption within the nuclear family during the baby's first year, as indicated by a separation or divorce, compared to none for the Hmong families. On the other hand, only 17% of the Caucasians had another new baby at the time that their toddlers were examined, compared to 67% of the Hmong mothers (Fisher's exact $p = .05$).

Both groups were highly mobile. Seventeen of the 21 families in each of the original two groups had moved at least once since the birth of the study child; that is, over 80% for both groups.

Medical History

The Caucasian children were more likely than the Hmong both to be up to date on their immunizations by 24 months of age, and to be weaned from the bottle (Fisher's exact $p = .05$). However, in spite of later weaning, the Hmong toddlers' diets were more nutritionally balanced than those of the Caucasian toddlers according to servings per day of the Basic Four food groups (Fisher's exact $p = .01$). Middle ear disease was relatively common, and there was no significant difference in rates between the two groups.

Figure 1 shows a graphic display of significant medical events reported by the two groups and confirmed by medical records. There was a significant difference (Fisher's exact $p = .01$) between cultural groups in utilization of emergency room services, and a tendency for Caucasian children to experience more burns, trauma, ingestions, and hospitalizations. The Caucasians as a group reported over three times as many accidents as the Hmong.

Insert Figure 1 about here

Developmental Assessment

The Denver Developmental Screening Test showed no child who would have been classified as developmentally delayed. However, the Hmong parents did tend to report fewer items passed in the language domain.

Physical Examination

Growth patterns of all children were normal except for one obese female in each group. The physical examinations showed an abundance of cold symptoms typical for the season. There were no significant medical findings that differentiated between the two groups.

Mother-Child Interaction Measures

Table 1 presents the results from the Mother-Child Rating Scales and demonstrates markedly different patterns between the two cultural groups. The Hmong mothers scored significantly higher ($p = .001$) and with less variability than the Caucasian mothers on all items.

Insert Table 1 about here

Table 2 shows a similar pattern of cross-cultural differences observed with Ainsworth's Scales of Maternal-Care Behavior and the HOME inventory. The Hmong mothers again scored significantly higher and with less variability than their Caucasian counterparts on each of the Ainsworth scales ($p = .001$). On the subset of interaction variables from the HOME, the Hmong families were rated significantly higher ($t = 3.17$, $p = .01$) than the Caucasian families. The graphic comparison in Figure 2 demonstrates that the cultural groups are distinct, with the Hmong mothers clustered toward the high end of the scale.

Insert Table 2 and Figure 2 about here

The striking difference in utilization of emergency room visits between the two cultural groups described earlier prompted an analysis of within-group differences as a function of maternal sensitivity. Within the Caucasian group alone, children of low sensitivity mothers averaged three times as many emergency room visits as children of moderately sensitive to highly sensitive mothers.

It should be noted that items on the mother-child interaction measures in all probability are highly correlated with each other. Consequently, t-tests on individual items tend to inflate the magnitude of group differences found. Nevertheless, the data comparing Hmong and Caucasian mothers' parenting behaviors are so striking overall that they

clearly appear to be reliable and replicable. The decision to apply t-tests to individual items of the Mother-Child Rating Scales and Ainsworth's Scales of Maternal-Care Behavior did present the possibility of detecting items (or clusters of items) that might fail to differentiate the two groups of mothers, or that might favor Caucasian mothers. In fact, however, there appear to be no areas in which Caucasian mothers as a group scored better than Hmong mothers.

Discussion

The Hmong sample in this study obtained higher ratings on parenting skills, on each of the four Ainsworth scales and on the HOME assessment instrument, indicating that these mothers were rated as more attentive, expressive, sensitive, responsive, and patient in child rearing than Caucasian mothers. Hmong mothers also were more effective in protecting their children from harm, evidenced by fewer emergency room visits for accidents and ingestions, and they reported a more nutritious diet for their toddlers than did Caucasian mothers, despite similar incomes. In contrast, the Caucasian children were more likely to be adequately immunized than the Hmong children. This difference strikes at a major dissimilarity in the perception of health and disease. The American Caucasian families have come to accept the preventive approach to health as routine, while Hmong families generally have had no experience with this particular medical approach. The conflict of having the child receive a shot when he or she appears well, coupled with reports of significant nerve injury secondary to injections received in Laotian villages, makes some Hmong parents reticent to accept immunization as an important aspect of health care.

Although the ratio of adults to children in the two populations was approximately the same (with Hmong households having larger numbers of both), Hmong families appeared to support the mother in her responsibilities to a greater extent than Caucasian families. There were significantly fewer disruptions from separation and divorce in the Hmong population and more sharing of child care among the adults in the families—particularly by the grandmothers present in the home.

Anecdotally, during clinic visits with the Hmong, the observer was particularly impressed with the effectiveness of the infant's use of the mother as a secure base for exploration, the fluidity of interaction, subtle adjustments made by the mother specifically to accommodate the child, and obvious parental pride in the child's smallest accomplishments. While some Caucasian dyads demonstrated similar patterns, the group differed in that a number of parents responded to the child in rigid, stereotyped ways, were sometimes unaware of the child's whereabouts in the exam room, and demanded performance, spoke in irritated tones, and showed clear disappointment in the toddler's failure to meet parental expectations.

Despite the high degree of reliability attained by Dr. Oberg in the administration of all instruments, a single observer conducting all assessments and making all mother-child ratings is an important source of potential bias. Three kinds of findings from this and other reports support the validity of the current results. First, a high degree of consistency is apparent across measures, including such indicators of maternal care as nutrition, accidents, and emergency room visits for toddlers both between cultural groups

and, in the latter case, between high- and low-sensitivity Caucasian mothers. Second, the patterns of associations between variables which distinguish between cultural groups in this study have been noted in other research. For example, strong social networks seem to support positive mother-baby interaction patterns (Crockenberg & Smith, 1982), and family stress, disruption, and tense or distant interaction patterns have been linked to childhood ingestions and emergency room visits (Sibert, 1975; Sobel & Margolis, 1965). Third, although reports of Hmong mother-infant relations are sparse, they are quite consistent with the present findings. Bernatzik (1963) notes that, in the traditional Hmong community, the child is regarded as "the most treasured possession a person can have" (p. 77) and describes the baby's life as rich in physical contact and social interaction with the active participation of mothers, grandmothers, and older siblings. Newlin-Haus (1982) compared 10-12 month old infants of immigrated Hmong in Portland with those of white middle class American families and found that Hmong mothers held and touched their infants more frequently and were more extensively comforting and consoling, while American Caucasian mothers, although attentive, playful, and vocal, were often inclined to interrupt the baby's activities and lived in object-filled rather than people-filled environments.

The quality of the mother-child relationship throughout infancy has clear implications for the subsequent development of the child. Ainsworth, Blehar, & Wall (1978) demonstrated that early patterns of care are significantly related to subsequent patterns of attachment. The child raised in a caring, consistent, and sensitive manner is likely to develop a secure attachment with the caregiver and to utilize the caregiver as a base from which to investigate the environment. The child cared for in a fragmented and insensitive manner is more likely to develop an attachment pattern characterized as anxious and insecure. Later, the two-year-old child previously assessed as securely attached is more likely than the insecurely attached child to show greater cooperation, persistence at task, and enthusiasm during problem solving (Matas, Arend, & Sroufe, 1978). In addition, Sroufe (1983) showed greater ego resiliency at four years of age in children who were securely as opposed to insecurely attached as toddlers.

Isolation, stress, and lack of social support in economically disadvantaged groups have been implicated as factors in negative parent-child interaction patterns (Vaughn, Egeland, & Sroufe, 1979; Yarrow, Rubenstein, & Pedersen, 1975; Zegib & Forehand, 1975). Within a low socioeconomic group, mothers of maltreated children are more likely to have shown insensitivity to the child's needs in the infancy period than those of children who subsequently are not maltreated. Additionally, anxious and/or avoidant rather than secure relationship patterns are more common in the early toddler period for the previously insensitive group (Egeland & Sroufe, 1981).

In the present study, the children in both of these populations appear to be healthy and within the normal range for their ages developmentally. Nevertheless, the marked differences in the adequacy of parenting between the two groups places the Caucasian children at greater risk for subsequent adaptational problems if there is not improvement in the quality of mothering many are receiving, in the general state of their parent-child relations, and in the circumstances which perpetuate these difficulties. Hmong mothers, on the other hand, demonstrate that the ability of a mother to be sensitive and responsive to her toddler is not entirely dependent upon the absence of stress, or on socioeconomic

status as it is commonly construed. The factors related to their particular strengths in providing uniformly responsive caregiving deserve further study. The sensitivity shown by these Hmong mothers seems related to a cultural priority for attentive childrearing and the availability and use of a strong extended family network. The payoffs are not necessarily seen in growth parameters or in general developmental testing, but possibly in fewer home accidents and in positive parent-child relationships which bode well for the child's future. The data invite our attention to the importance of the maternal-child relationship and how it is influenced by cultural factors. Such understanding and awareness is essential when providing pediatric care and counseling.

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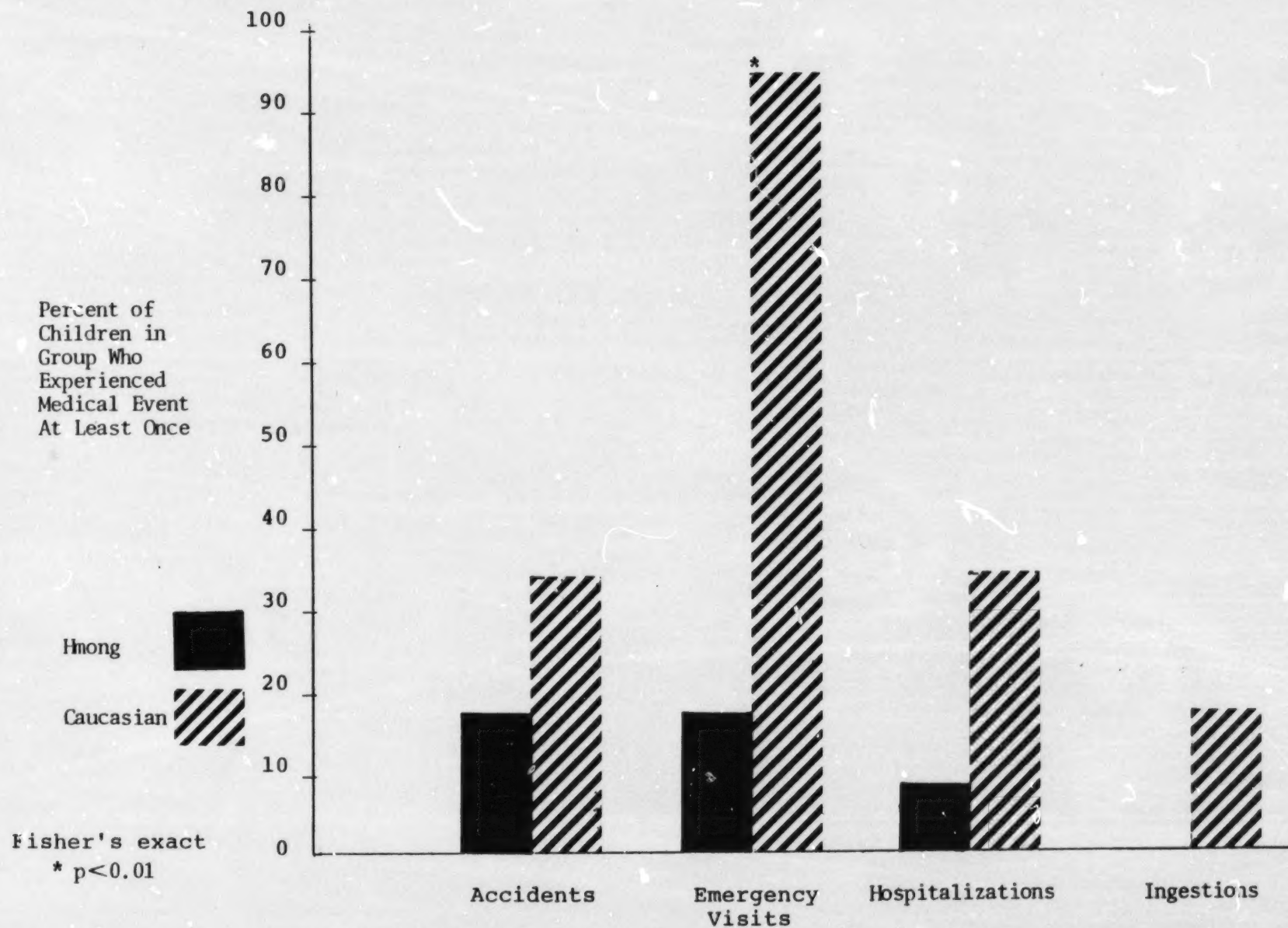


Figure 1. Comparison of significant medical events for Hmong and Caucasian toddlers. 15

Table 1

Comparison of Hmong and Caucasian Dyads on Mother-Child Rating Scales*

		<u>Hmong</u>		<u>Caucasian</u>	
		<u>$\bar{X}$</u>	<u>SD</u>	<u>$\bar{X}$</u>	<u>SD</u>
1.	Attentiveness	8.58	0.52	6.17	1.64
2.	Quality of physical contact	8.92	0.29	5.42	1.31
3.	Facility in caretaking	8.58	0.79	6.12	1.75
4.	Speed of responsiveness to fussing and crying	8.67	0.65	6.42	1.68
5.	Effectiveness of mother's response to crying	8.58	0.90	5.83	1.80
6.	Variability of mother's behavior	8.08	0.90	4.92	1.67
7.	General expressiveness of mother towards child	8.50	0.52	5.17	1.70
8.	Frequency of expression of positive regard	8.17	0.58	4.92	1.88
9.	Frequency of expression of negative regard	9.00	0.00	7.67	1.16
10.	Mother's alertness	8.08	0.79	5.25	1.36
11.	Appropriateness of mother's interaction	8.50	0.80	5.33	0.78
12.	Delight	8.67	0.65	4.42	1.56
13.	Quality of mother's verbalizations	8.92	0.29	6.08	1.44
14.	Mother's patience	8.92	0.29	5.83	1.27

*Every item shows significant group difference, 2-tailed t test, $p < .001$

Table 2
Comparison of Hmong and Caucasian Dyads on Ainsworth's Scales
of Maternal-Care Behavior and the HOME

	<u>Hmong</u>		<u>Caucasian</u>	
	<u>$\bar{X}$</u>	<u>SD</u>	<u>$\bar{X}$</u>	<u>SD</u>
Cooperation vs Interference**	8.58	0.52	5.67	1.30
Acceptance vs Rejection**	9.00	0.00	6.50	1.17
Accessibility vs Ignoring**	8.83	0.39	5.50	1.68
Sensitivity vs Insensitivity**	8.58	0.67	5.17	1.27
HOME*	10.00	0.00	8.40	1.73

*2-tailed t test, p .01

**2-tailed t test, p .001

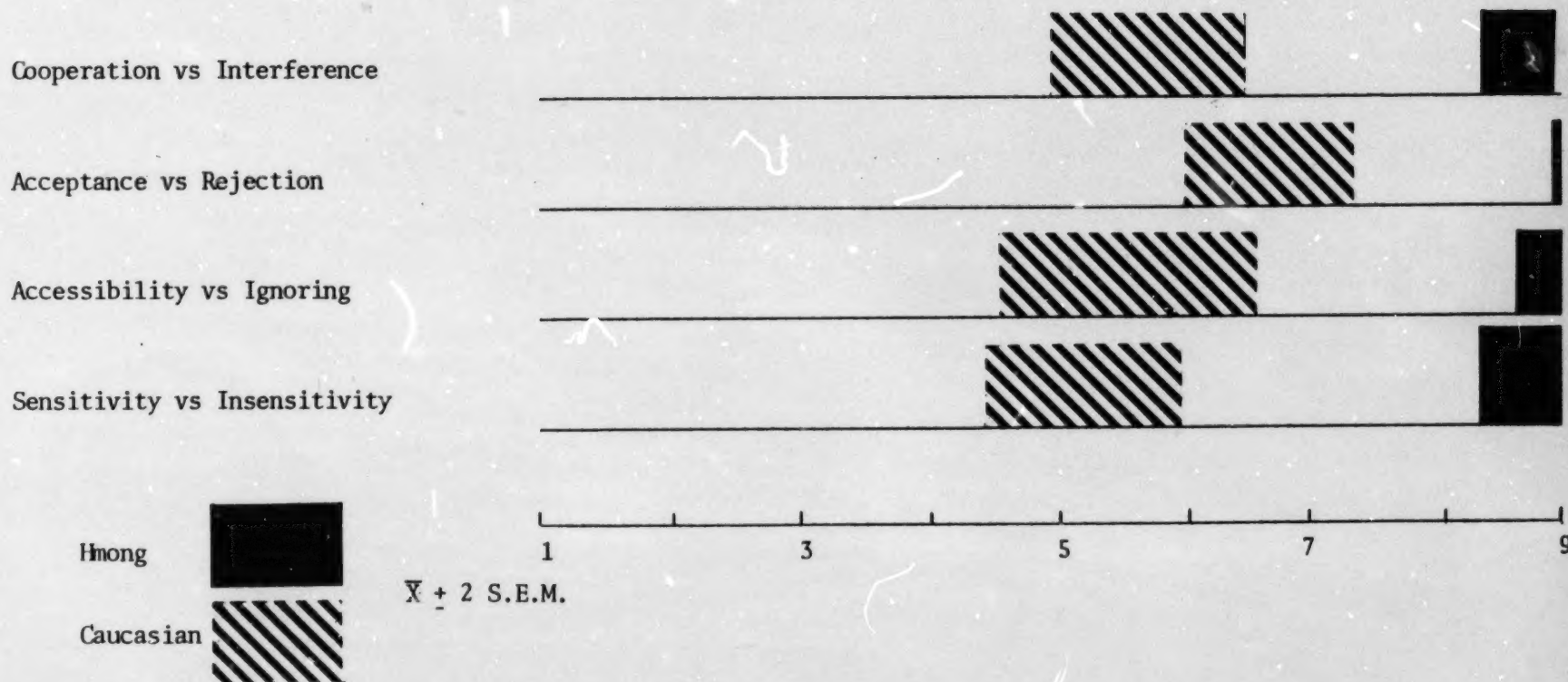


Figure 2. Graphic comparison of Hmong and Caucasian dyads on Ainsworth's System for Rating Maternal-Care Behavior scales.

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